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THE FERNS OF ALSTEAD, NEW HAMPSHIRE.

HELEN M. NOYES.

For several weeks I have watched with interest the ferns occurring within a five-mile radius of the Alstead School of Natural History. Besides Alstead itself this region embraces portions of several other towns, though with few exceptions the species here enumerated have all been collected within the limits of Alstead township. Notwithstanding the fact that there is little or no limestone in the immediate vicinity of Alstead, the natural conditions of the region — naked and wooded hills, exposed and sheltered cliffs, upland and lowland woods and swamps — are favorable to the development of very many species, and the unusually complete representation of many genera has furnished a good opportunity for study. To those familiar with the limited region which I have examined, the following notes may be of interest, while to others they may furnish data for some profitable comparisons.

There is hardly a pasture or roadside, wet or dry, from which one does not get, as he walks or rides, the fragrance from the damp or almost viscid fronds of the sweet-scented fern, *Dicksonia pilosiuscula.* The stone walls marking the boundary lines of the hillside farms, and the boulders, often lodged in deep hollows, are banked on either side by beds of the delicate, minutely pubescent fronds; and where the walls or fences have been destroyed the boundaries are now marked by broad belts of Dicksonia. Wherever the plant grows, the fronds show a decided tendency to turn in one direction. Sometimes it seems that the fruit-bearing surfaces are all turned from the light. This characteristic is particularly noticeable where the fern grows in a ravine, with the intenser light entering from one direction. Other observers have remarked the tendency of the fronds to face the prevailing wind of the region, and in evidence have pointed out large patches in the open where the light is essentially uniform from all directions.

Often mixed with the Dicksonia, but as frequently growing by itself, is the lady-fern, *Asplenium Filix-fœmina*, easily distinguished from the other by its stouter, smoother, and more succulent fronds. Along the roadsides and in open places the fronds are now (early August) brownish and straggling from the weight of the fruit; but in spite of the unattractive appearance of this fern, its soil variations are striking and exceedingly baffling. I find it difficult to reconcile as forms of the same species the plant of the dry roadsides and of the wooded swamp not a hundred yards away; yet the diverse forms are so numerous and inconstant that it seems almost hopeless to attempt any definite characterization of them.

In rich, shaded soil, especially in alluvium, I have occasionally found the rarer *Asplenium thelypteroides*. In order to distinguish this fern, at first sight, from the ostrich-fern, one must have a long acquaintance with the plant. In the ostrich-fern, however, the pinnae are firmer, more crowded and more over-lapping than in the more herbaceous frond of the Asplenium; and, furthermore, if the Asplenium is in fruit all doubt as to its identity will be removed, for an examination of the under side of the frond will reveal the elongated fruit dots characteristic of the genus.

Other representatives of this genus here are *Asplenium ebeneum* and *A. Trichomanes*, often found side by side on shaded, moss-grown rocks. The ebony fern, *A. ebeneum*, is the taller and more upright of the two plants, with a smooth, stout, black stipe and rhachis, while *A. Trichomanes*, the smaller of the two, occurs in dense spreading tufts, a few green fronds often rising from a mass of dead, brown stems, the remnants from many previous years.

Most interesting to me of the Alstead Aspleniums is a bed of *A. angustifolium*, at what may be its easternmost station. The only patch found was by the course of a spring brook, in rich, alluvial woods near the Cold River, only a few miles from its junction with the Connecticut. So closely did the plant resemble, at first sight, the Christmas fern, that it was not until I had passed my hand over the fronds and examined them more carefully that I noticed the difference. The fronds are longer and more spreading, and of such delicate texture that they wilt as quickly as the maiden-hair, *Adiantum pedatum*, a plant which abounds here as in all the rich woods of western Cheshire County. At this time, early in August, the fruiting fronds of the Asplenium, with elongated, crowded dots, are just appearing.

On a shaded hillside I have once found fruiting fronds of the brake, *Pteris aquilina*, a plant common in every clearing, but, in my experience, rarely fruiting. Nor have I seen the plant so tall and broad as here in the woods, where the fruiting plants are conspicuous by their more straggling-branched appearance, caused by the infolding of the margins to cover the spore-cases.

In a few places the rock-fern, *Polypodium vulgare*, covers the ledges. In the shade the fronds are long and green, while in the sun they are stunted and yellowish; but nowhere here have I seen the plant in such abundance as in eastern Massachusetts.

The two common species of *Phegopteris*, *P. polypodioides* and *P. Dryopteris*, are seen in their respective habitats. Beds of the former are growing in the lee of many dry banks. The fronds are triangular in shape, peculiarly roughened, and almost, if not quite, invariably the two lower pinnae are pushed forward and upward from the rest. I have searched carefully for the broader fronds of *P. hexagonoptera*, but evidently it is not found in this immediate vicinity. *P. Dryopteris*, with its more delicate, thrice-divided fronds, spreads in waving carpets over large areas of damp woods.

I am most pleased that this year the Aspidiums have been spread before me for study as never before, — for I found some time since that the secret of careful determination lies in careful comparison. *Aspidium noveboracense*, with its pale fronds attenuated at base, here, as in all New England, is frequent in the borders of woods, while in the deeper shade is the common *A. spinulosum* var. *intermedium*. The low, light-green fronds of *A. Thelypteris* had often attracted my attention in the meadows and swamps, but in the alluvial soil of Cold River I was surprised to find the sterile fronds two feet high, while the more slender, fruiting fronds were even taller.

Aspidium cristatum, one of the evergreen ferns, I see frequently in swamps, where its fertile fronds, with large, closely-crowded fruit-dots, are now mature. On the hillsides, *A. marginale* appears in characteristic form. The fronds rise symmetrically from the crown, the fertile ones often falling heavily back, some of them borne quite to the ground by the weight of the large, marginal fruit-dots.

Another evergreen, striking by virtue of its shining fronds, is the

Christmas fern, *Aspidium acrostichoides*, in texture resembling *Polypodium vulgare*, but with the fronds longer and more deeply cut. On the slope of Fall Mountain, in Walpole, I found a single clump of the variety *incisum*, with the pinnae curiously cut and crisped, but hardly so attractive as in the type.

The Woodsias are represented here by two species. *W. Ilvensis* is found in patches on exposed rocks and cliffs. As the elevation and exposure to sunlight increase the plant becomes very stunted and chaffy, but in shaded places the green fronds rival in length those of its scarcer relative, *W. obtusa*. The latter species has thus far been found only on the slopes of Fall Mountain, but there it grows on an earthy bank with *Cystopteris fragilis*, a species which loves best the dripping, shaded rocks by streams.

All three of the Osmundas grow here. The flowering fern, *O. regalis*, with only the tips fertile, is stunted and yellow in dry soil, but tall and green in the swamps. The interrupted fern, *O. Claytoniana*, is more frequent here than the cinnamon fern, *O. cinnamomea*, and it apparently fruits somewhat later. The sterile fronds of these two species are not readily separated at a glance, but in the cinnamon fern there is a tuft of wool at the base of each pinna, while the pinnae of the interrupted fern are naked at base.

I came from a region where one plant of the ostrich fern, *Onoclea Struthiopteris*, was a carefully protected garden treasure, and, naturally, it has been a constant revelation to me to see, even along the roadsides, the rank profusion of this splendid fern. It is in the alluvial soil of the river banks, however, that the plants become tropical in their size and royal bearing. On the deep, black alluvium near the Connecticut I found one day half an acre of these ferns. The great crowns, with the slightly overlapping fronds, rose to the height of several feet, and it seemed a pity to brush through such a luxuriant growth. Each frond is a perfect production in itself, in form like the feather from which it so aptly takes its name. From the centre of the crown come the thick, twisted fruiting fronds. These are not generally found; but even more of a surprise was the discovery by one member of the school who found, in place of fruiting fronds, a nest of the Maryland yellow-throat — truly a royal home for the young songsters.

Growing beside these plants, — indeed often mingling with them — are the broad, more herbaceous fronds of the sensitive fern, *Onoclea* *sensibilis*. Here in the deep soil its fronds greatly exceed in size those which we ordinarily see in the meadows, and they appear like the basal leaves of some flowering plant. When the first frosts of autumn come the sterile fronds blacken and shrivel, and only the stiff fruiting fronds remain, brown and torn.

My attention has been drawn, likewise, to a group of fern-allies, the *Ophioglossaceae*, which here present a very fair display of species. Within a mile of the school I find four species of *Botrychium*, the moonwort. *B. virginianum* is most common, its platform-like sterile portion often a foot and a half wide, most exquisitely cut, and, with the long-peduncled fruiting frond, raised high above the other herbaceous vegetation of the dry woods. Not so attractive a plant, but one fully as interesting to find, is *B. matricariaefolium*, which occurs frequently among the leaves under deciduous trees. Its sterile pinnae are small, but coarse and of thick texture, the fruiting portion being the conspicuous part of the plant. Not far from this species, but mostly among pine needles, I found, by searching on hands and knees, the tiny plants of *B. lanceolatum*. In some places only the fruiting tips appeared, while below, half covered, were the finely-cut sterile pinnae. So frail are these two species that I was moved by an impulse to tiptoe over the pine needles least I should crush one plant.

Botrychium ternatum, with its many varieties, does not appear so commonly in this region as in localities near Boston. A single form has thus far been noted, the variety *intermedium*, which rarely grows in open pasture lands.

One hot morning, after studying the plate in Gray's Manual, I hunted in a sunny meadow for the adder's-tongue, *Ophioglossum vulgatum*, and for some time the closest search did not reveal the smooth, oval leaf and the uncanny green fruit-stalk. But when I discovered at first one, then another, and another, among the tall meadow grass, my delight was keen indeed. Further exploration has shown the plant to be not uncommon in meadows and damp fields, where its characteristic yellow roots are deeply buried in the sod.

ALSTEAD SCHOOL OF NATURAL HISTORY.
Alstead Centre, N. H.

A CLUSTER-CUP FUNGUS ON LESPEDEZA IN NEW ENGLAND.

A. B. SEYMOUR.

THE Cluster-cup fungus, *Aecidium leucostictum*, growing on leaves of various species of *Lespedeza*, was first mentioned as occurring in North Carolina, being listed in Curtis's Catalogue of the plants of that state. It has since been found in southern Illinois (Seymour) on *Lespedeza repens*, in Canada (Dearness) on *L. capitata*, and in Alabama (Earle). It was first described in Grevillea 3:61. December 1874, by Berkeley as *Aecidium Orobi* var. *leucostictum* and again in Bull. Ill. Lab. **2** : 226. 1885. There it is well considered a distinct species as named above.

It has never been reported within five hundred miles of Boston till now. On the twentieth of July, 1900, I found it fairly abundant in several localities on *Lespedeza hirta* near Shoot-flying hill, about five miles west of Hyannis, Mass., on the western end of Cape Cod. The Canada specimens were also collected in July, but the southern Illinois specimens in May.

The plant is easily detected by the pale but clear yellow spots which occur on the upper surface of the leaf, opposite the cluster-cups, and are about 2 mm. in diameter.

The cups are small, very inconspicuous and in clusters of about twenty-five, scattered or arranged in minute "fairy rings."

The question now arises, what is the teleutosporic rust-form of this fungus. If it is a heteroecious species, like wheat-rust, which grows at one stage on barberry and at another on wheat, the teleutosporic stage must occur on some plant of wide distribution. If, however, the fungus is autoecious, producing teleutospores on the same host plant, are the teleutospores known as such, or do they remain to be discovered? Among known forms, the only one which suggests itself is *Uromyces Lespedezae.* This has both uredo and teleutospores known and is abundant on various species of *Lespedeza.* It is very common and widely distributed. If *Aecidium leucostictum* is correspondingly abundant, it must be generally overlooked.

Whatever its affinities, there is no apparent reason why it may not be found elsewhere in New England.

CAMBRIDGE, MASS.

THE DISTRIBUTION OF THE BILBERRIES IN NEW ENGLAND.

M. L. FERNALD.

WHILE walking late in June in open pine woods near York Village, Maine, the writer was greatly surprised to find, among low junipers and other shrubs, a patch of dwarf bilberry, *Vaccinium caespitosum.* The bushes, somewhat hidden by juniper, arrow-wood (*Viburnum dentatum*), and black cherry (*Prunus serotina*), covered an area about twelve feet square, and were fruiting abundantly. Little time was devoted to further search, and no other colonies of the plant were seen; but the uniform character of the large tract of woods suggests that the plant may not be restricted to the small area noted.

The special interest of this recently discovered colony at York lies not alone in the fact that this is the southernmost known station for the plant in eastern America, but chiefly in the striking circumstance that, as ordinarily known to New England botanists, *Vaccinium caespitosum* is a plant of the highest alpine summits. On the mountains, furthermore, the dwarf bilberry is not, like the related *V. uliginosum*, of general distribution. While the latter abounds everywhere above timber-line on the New England and Canadian mountains, the former (*V. caespitosum*) is generally confined to extremely limited areas near the summits of a few peaks. In the Quebec mountains it is known only at the summit of Mt. Albert in Gaspé; on the highest peaks of New Brunswick *V. uliginosum* alone is found; as a mountain-plant in Maine *V. caespitosum* is known only from two peaks, — Ktaadn, and at the pinnacle (4,450 feet) on Saddleback, near Rangeley Lake; in the White Mountains it occurs on the summits of Washington, Monroe, Moosilauke, and probably Lafayette, but it is rare or unknown on the other peaks; in Vermont it is found as an alpine species on Mt. Mansfield; and in the Adirondacks it occurs on the summits of Mts. Marcy and Whiteface.

Growing thus with *Diapensia lapponica* and other arctic-alpine species upon the highest peaks of northern New England, New York, and Canada, *Vaccinium caespitosum* would naturally be expected, like them, in arctic and subarctic portions of eastern America. Although it is said in the Synoptical Flora to grow on Hudson Bay, no authentic record of it can be found from north of Hamilton river (latitude 53°–54° N.); and recent explorers have seen it on the Labrador coast only as far north as Chateau Bay (lat. 52°). Furthermore, *Vaccinium caespitosum* is a species unique to North America, not of broad range in the northern hemisphere like most of the arctic-alpine species of New England. If, like them, it occurred in arctic America, we should expect to find it in northern Europe as well.[1] But, as stated, there is no evidence that the dwarf bilberry is an arctic species, nor does it occur in Europe.

In New England and adjacent Canada, furthermore, the plant is by no means confined to the alpine summits. In Vermont it has been found on the banks of the West River at an altitude of not more than 400 feet (RHODORA, ii. 88). Among the White Mountains it is known from a few valley stations, — for example, by Moose river in Randolph, where it is said never to fruit, and in a pasture at Jackson. In Maine the writer has found it at low altitudes in many sections. The York station recently discovered has been already mentioned. This, the most southern known colony of the shrub, is within the limits of a town where *Sagina nodosa*, *Potentilla litoralis*, *P. tridentata*, *Plantago maritima*, and other far-northern species are known. But these plants are all on rocky banks or cliffs near the sea, where the conditions are not unfavorable to arctic species. The *Vaccinium*, on the other hand, grows with huckleberries (*Gaylussacia resinosa*), columbine (*Aquilegia canadensis*), Lecheas, Helianthemums, and other plants of southern range, in dry open woods, nearly or quite three-fourths of a mile from the sea.

With the exception of the York station (latitude 43° 8′), the dwarf bilberry is as yet unknown in Maine south of latitude 44° 50′. In the valley of the Kennebec it occurs on sheltered rocky banks at Madison, and from there northward is not uncommon, — as often on sunny hillsides as on sheltered banks. In the Carrabassett valley the shrub is found on sandy knolls near West Embden, and at New Portland it is abundant on the river bank. In the valley of the Sandy river it has been seen only by the river in Phillips, but no other locality has been searched for it. In the valleys of the Penobscot and its tributaries, the Piscataquis, the Mattawamkeag, and the Wassataquoik, the plant is to be found on almost any ledgy or gravelly river-bank from Orono northward, and not infrequently the shrub abounds on dry sunny slopes. In fact, the " Sugar Loaf " in Orono, a hot sandy hill where the dwarf bilberry thrives, is the northernmost station in Maine for the southern species, *Polygala polygama* and *Corylus americana*. In the valley of the upper St. John, however, from the mouth of the Madawaska river westward, *Vaccinium caespitosum* reaches its greatest development in Maine. There it is one of the common blueberries, covering acres of gravelly shore and hillside pasture. The fruit is gathered as "Indian blueberry"; though, on account of its habit — the berries solitary or few, and drooping from the axils — it is less easily picked than the equally common *V. canadense*.

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[1] For discussion of such distribution, see RHODORA, ii. ~~38~~.

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Little is known of the distribution of *Vaccinium caespitosum* in New Brunswick, save in the St. John valley, but further exploration will doubtless show it to be as frequent there as in Maine. There are many large areas in Maine, too, where the plant has not been noted, as the thickly populated section between the Sandy river and York. Here, as in New Hampshire and Vermont, the species is probably much more common than has been supposed. The comparative insignificance of the shrub, — rarely a foot high, and with drooping flowers and fruits hidden by the leaves, — as well as the prejudiced opinion that it should be looked for only upon alpine summits, has tended to keep the plant an unknown species in regions where it may abound. At any rate, its comparative frequency throughout Maine, from latitude 44° 50′ northward, and its absence from Labrador, north of Chateau Bay and Hamilton river (latitude 54°), are sufficient evidence that the dwarf bilberry is a boreal or Canadian plant, though of rather limited distribution in the East. Its occurrence on the alpine summits of a few mountains, and not on the lower treeless slopes, is not readily explained; but that several common species of our lowland woods — the bunchberry, *Cornus canadensis*, etc., — thrive upon the alpine summits with *Diapensia*, *Cassiope*, and *Bryanthus*, is a fact well known to all students of the New England mountain flora. *Vaccinium caespitosum*, then a plant of somewhat extended lowland range, should be classed, apparently, with *Cornus canadensis*, rather than with the arctic-alpine *Diapensia*, *Cassiope*, and *Bryanthus* which, in our latitude, cling exclusively to the alpine peaks.

With the common mountain bilberry, *Vaccinium uliginosum*, the case is quite different. This species, as already stated, abounds above timber-line on practically all the higher mountains of New England, sometimes on peaks of scarcely 2,000 feet altitude. It is in no sense confined merely to the "pinnacles," as is the tendency with

V. caespitosum, but it covers acres of ledgy slopes. Unlike the latter species, however, the mountain bilberry rarely grows at low altitudes. In Maine only three such stations are known, — a dry hillside in Farmington, a ledgy shore of the Carrabassett in Jerusalem (in the valley between Mt. Abraham and Mt. Bigelow), and Fort Kent on the upper St. John, where it is reported by Miss Furbish (see RHODORA, i. 172). In New Hampshire it rarely descends to the valleys, as in Franconia Notch; and in Vermont a single lowland station is recorded, on the bank of Lamoille river in the Green Mountains (RHODORA, ii. 88). Thus, although of very general distribution on the mountain summits of New England, the mountain bilberry as a lowland species is very exceptional.

In its broad range, *Vaccinium uliginosum* occurs throughout the circumpolar regions of the northern hemisphere, and it is one of the chief sources of food among northern races. It is very decidedly an arctic-alpine species, though not of such restricted distribution on our mountains as the arctic *Diapensia*, *Cassiope*, etc. Why this shrub, which abounds in polar regions, should thrive just above timber-line on so many of our mountains, while *Vaccinium caespitosum*, a lowland species, which is unknown north of latitude 54°, clings, when it ascends the mountains, to the most exposed summits, is more easily asked than answered. That this seemingly anomalous condition exists there can be no doubt, but for its final explanation we must await further investigation.

A REMARKABLE DEVELOPMENT of *Steironema lanceolatum*. — A form of *Steironema lanceolatum* which was exhibited at Horticultural Hall last summer was the subject of much discussion. The plant was found in Holbrook, on the banks of a ditch, in a meadow. It has since been found in a second locality from the first, so that it cannot be regarded as an abnormal development. The plant is remarkable in that the stems trail along the ground *for a distance of five or six feet*, rooting at intervals in the mud. In this it resembles the southern *S. radicans*, but specimens compared at the Gray Herbarium show it to have the foliage, inflorescence, and calyx of *S. lanceolatum*. — ALICE L. GRINNELL, Holbrook, Mass.

AN AFTERNOON OUTING FOR TOADSTOOLS.

H. Webster.

The rainy days of the second week in August were just in time to revive the sinking hopes of the constant few among the members of the Boston Mycological Club, who had been striving, despite the parching drought of July, to find toadstools enough to maintain the interest of the regular Saturday exhibitions at Horticultural Hall. They had almost given up their efforts, which had been rewarded by only a few of the commonest species, so often exhibited that visitors to the exhibitions began to tire of them. Memories of moister seasons of a few years ago, when the last week of July saw the tables gay with seventy-five to a hundred species, seemed unreal, and unreliable as a basis for present expectation. For such is the way with the fleshy fungi. Given moisture, they fruit abundantly; denied it, they fruit stingily or not at all, and leave us to wait perhaps until the year comes round again for a sight of the full range of species.

Coming from the New Hampshire hills, where, in spite of lack of rain, toadstools had been gathered in great variety, if not in great abundance, some of us were unwilling to accept the prevalent attitude of discouragement. Inviting, therefore, a despairing friend or two, we started on the afternoon of August tenth, with the mercury in the nineties, for the Blue Hill region.

Though formerly somewhat inaccessible, except about Blue Hill itself, this region is now opened to visitors in its eastern extent by the electric railroad, which, leaving the Neponset River at Milton Lower Mills, passes up Randolph Avenue directly through the heart of the Metropolitan Reservation, between Chickatawbut and Hancock Hills. At various points along the line the fungus hunter may find good collecting, for there are numerous low slopes and hollows that are moist at almost any time, and the swamps and bogs lying south of the range, about Great Pond in Braintree, and to the east of Ponkapog, can be reached by a longer ride and in the latter case by a moderately long walk.

The higher stony ground, especially where tumbled boulders and broken rock lie exposed on southern slopes, should be avoided by timid explorers. For such places are inhabited or haunted by rattlesnakes, that still are numerous enough to make a word of caution necessary. Though numbers of these reptiles are killed every year, they still thrive in limited areas, and the chance of meeting a straggler, who has perhaps come down to low ground for water, or for a frog or two, is still to be reckoned with. Twice within the last few years I have met a rattlesnake in the region about Chickatawbut hill; in neither case, however, was there really any danger, and in neither case did the snake survive the encounter.

On this hot August afternoon our party left Milton about two o'clock. In twenty minutes or so we were to all appearances far in the country. Resisting the temptation to alight and take the empty one-horse "barge" or "team" that stood waiting above Tucker's hill to take us or any one to Houghton's Pond — south of which, it may be noted, stretches a broad extent of low ground, well wooded, to Ponkapog Pond, a region that usually well repays a visit — we rode on to the nameless point that marks the limit of the first five-cent fare.

Striking into the young, hard-wood growth on the east of the road we began, though on unpromising ground, to find toadstools immediately. The first species to be seen was *Lactarius volemus*, common enough, but always interesting in the woods. Some of the older specimens had the margins turned up, showing the gills, and the surface of the pileus was much cracked. Near by was a single large specimen of Peck's *Lactarius corrugis*, allowing an instructive comparison of the two species, which are very closely related. The latter, as its author says, is darker, and characterized by the variously wrinkled pruinose-pubescent pileus. It is fairly abundant in rather dry deciduous woods in a few places in the Reservation. More conspicuous than the Lactarii was *Boletus alveolatus*, numerous fruits of which thrust their shiny red caps well above the leaves, some of which, however, stuck fast to the viscid surface. Though not well known farther north, this red Boletus, with its rough, lacerated, red and yellow stem, covered with a raised network of coarse, stiff ridges, is familiar in woods about Boston, and is not improbably common throughout eastern Massachusetts. The blood red of the young pileus gives place to some yellow in more mature fruits. The young pores, of a deep rich red, are frequently covered with drops of moisture. The flesh changes quickly to blue, and the pore surface is often irregularly pitted, characteristics which, with the very rough stem, identify the plant with that which Frost described as *Boletus alveolatus* B. & C. By that name it seems convenient to refer to it, pending a revision of the synonymy of this group of the genus. Associated with these interesting species were *Boletus chromapes*, always attractive by its coloring, and *B. ornatipes*, which in the rough, coarse reticulations of its yellow stem vies with *B. alveolatus*.

Treating with scant attention a few dried-up specimens of the ubiquitous *Russula foetens*, and a single well-fruited *R. furcata*, and pausing a moment by a stump to gather one or two small fruits of *Cantharellus aurantiacus* of the pallid variety figured by Cooke, which seems to be the common form in the region, I hunted over the ground for the yellow form of *Amanita rubescens* and for Ravenel's Boletus, which I remembered seeing in that particular patch of woods three years ago. They were not there this time. In fact *Boletus Ravenelii* is so disappointingly rare about Boston that very few collectors know the beauty of it except by hearsay. Once seen, its exquisite, powdery yellow veil, that so long masks the tubes, and the contrast between the sulphur yellow of the stem and the dull red of the pileus linger in the memory and make one eager to find it again. Had there been time to reach a pine grove, we should also have sought its near relative, *B. hemichrysus*, whose dusty-looking, soft, tawny-golden pileus is so conspicuous on the trunk or at the base of a pine — when you can find it. I have collected it a mile or two to the east, in Quincy, and a damaged specimen from Canton or near there, turned up at the exhibition on the day following our excursion. All collectors should hunt carefully for these two Boleti in early August, and preserve and report those found.

Making our way back to the road through a tangled thicket covering boggy ground that would have been impassable dry-shod in an ordinary season, and picking up a handful of *Lactarius subdulcis*, another of *L. griseus*, which is not frequent hereabouts, and one or two pale specimens of *L. chrysorheus*, we passed to the other side and plunged into the shade of a bog that is less densely overgrown and usually very wet. Here were one or two Leptonias and Inocybes, dull colored and perplexing, and with them, always a joy to the eyes, Peck's *Entoloma cuspidatum*, a plant not rare about Boston, but collected only by those who insist on braving the mosquitoes and the wet of sphagnum bogs. To be fully appreciated, the pale yellow delicate fruits of this fungus, each tipped with an abrupt cusp, must be seen rearing their frail caps above the soft masses of sphagnum in which their stalks are buried. Were it not for an occasional hint of salmon on the mature gills, the thought that they are pink-spored would hardly occur to one.

Beyond the bog our objective point was a bit of moist ground higher up, where last year grew abundance of *Boletinus decipiens*. Careful search, however, failed to discover it, and perhaps we were too early, for August 16, was the date in 1899. *Boletus bicolor* was fruiting, a fungus very easily mistaken for *B. miniato-olivaceus* var. *sensibilis*, on account of its color, pink and yellow in the older specimens, its large, soft caps, and its odor, which to some suggests the smell of sulphur, to others that of hickory nuts. The red stem, yellow at the top, and the scarcely changing yellow flesh mark *B. bicolor*. The other with the long name, has a yellow stem and changes quickly to blue. Here also were two fruits of the anomalous *Paxillus paradoxus*, half agaric and half polypore, with soft red pileus and general suggestion of Boletus in tint and texture, and yellow fleshy lamellae with conspicuous transverse partitions, in this case less porous and so less like Boletinus than usual.

Warned by a rapidly darkening sky, and by approaching shocks of thunder, we cut short our search and hurried back to the road, where we found shelter from the shower that speedily followed. Satisfied that we had demonstrated the existence of toadstools even in a dry, hot season, we were content to let the homeward car carry us within a few rods of a wooded hill where we might have found *Lactarius luteolus*, *Craterellus Cantharellus*, *Boletus Peckii*, *Cantharellus minor*, and *Cyclomyces Greenii*, all of which have been collected there, and perhaps were waiting for us as we passed. At a quarter to six we were back again on sterile Boston pavements.

PLANTAGO ELONGATA IN RHODE ISLAND. — In the July number of RHODORA I observe a brief communication on the occurrence of *Plantago elongata* Pursh, or properly, as it seems to me, following the unbroken usage of over fifty years, *P. pusilla* Nutt.

About 1871 I found the plant along the highway leading from East Greenwich, Rhode Island, to the famous forge of General Greene. About a quarter of a mile north of the forge, the road passed over a sort of gravelly common, where it was quite abundant.

A year or two afterwards I found it about half a mile south of East Greenwich, on the road to Hunt's bridge. — J. W. CONGDON, Mariposa, Cal.

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